ENVIRONMENTAL
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February 10, 2011

Gerald Schweighart, Mayor
102 N. Neil Street
Champaign, Illinois 61820

Subject: Evaluation of Contaminants at Boneyard Creek, Champaign, Illinois.

Dear Mayor Schweighart,

Environmental Engineering and Contracting, Inc. (EEC) has conducted sampling of residual material contained within a pipeline that daylights at Boneyard Creek and soil/residual surrounding the pipeline. The pipeline is located at the approximate GPS Coordinates North 40.12120, West 088.23763. This letter presents the results of the sampling, a brief background describing events leading up to this sampling event, and a discussion of EEC's thoughts and recommendations for additional activities that should be conducted with respect to the Manufactured Gas Plant (MGP). I believe you will find the results of this sampling event, as well as the results of a previous sampling event conducted by Champaign County Health Care Consumers (CCHCC), as sufficient evidence to indicate that further investigation of this pipeline, as well as a more comprehensive investigation related to the former Ameren facility whole, is not only warranted, but necessary to evaluate potential impacts to human health and the environment in the neighborhood surrounding the former Ameren MGP.

Background

In October 2009, EEC was retained by the law firm of Weitz & Luxenburg, LLC, to evaluate environmental concerns associated with the former Ameren MGP. As part of this review, EEC evaluated documents describing the historic activities related to MGP. One of the primary objectives of this review was to evaluate the disposal practices and potential conduits for offsite migration of MGP wastes. This data was included in a report prepared by EEC titled "Existing Conditions Report and Proposal for Further Sampling," dated June 7, 2010.

Among the significant findings from the report, was the identification of a document that described a discharge pipeline that was utilized by the former MGP plant to discharge petroleum waste directly to Boneyard Creek, and went on to describe other disposal practices from the plant. This report, authored by Ralph Hilscher, an engineer with the Illinois State Rivers and Lakes Commission, titled "Report on the Contamination of the Boneyard by Gas House Wastes," dated 1915, indicated the presence of a 8-inch-diameter clay pipe that ran parallel to the railroad tracks along the southern side of the tracks, between the northwest corner of the former MGP plant to Boneyard Creek.

The report stated:

> "The presence of oil on the stream, accompanied by occasional odors characteristic of gas house waste, has been the source of more or less offence to persons along its banks for some years past. In the early days of the industry it was custom to dispose of all waste water, oil and tar in a ditch along the Big Four Tracks...."

Further, the report stated

> " During that time, the water usually was coated with a thick layer of oil which persisted throughout almost the entire length of the stream and the odors, resulting were magnified in proportion. The stream was rising and falling frequently due to heavy rains which resulted in the banks, and in some instance lawns, being coated with heavier oil and tar. Since this conditions occurred, it has been found that large quantities of tar have accumulated along the bed of the stream, a condition which unless the stream be artificially cleaned, must persist now for a long time and which during that time will result in large amounts of oil being liberated from the stream bed every time it is disturbed by flood water or otherwise."

In the nearly 15 years that Ameren and its consultants have been evaluating the MGP site operating history and contaminant distribution, this report has not been identified and/or was ignored. It should be noted, that EEC found this documents after only one day of searching for background information.

More disturbing is that upon receiving EEC's Existing Conditions Report, both in writing and during discussions during a meeting in Springfield (July 6, 2010), the Illinois Environmental Protection Agency (IL EPA) refused to take any additional steps to investigate the possible existence of this pipe or land disposal areas. Specifically, the IL EPA stated that "Unless additional information is available on the location of the pipe, no further action is warranted." It is unfortunate and unconscionable that the IL EPA and Ameren would leave the burden of proof on private citizens to provide these findings, instead of those that are charged with this responsibility (IL EPA) and/or the party responsible for remediation of these contaminants (Ameren).

Because of the IL EPA refusal to investigate or cause Ameren to investigate the pipeline and potential disposal site further, a non-profit consumer group, Champaign County Health Care Consumers (CCHCC) took it upon themselves to determine if the pipeline could be located. Using the description provided in EEC's report, Ms. Claudia Lennhoff and Mr. Grant Antoline of CCHCC, went to Boneyard Creek, and immediately found a pipe similar to that described in Hilscher's report sticking out of the riverbank just above stream level. CCHCC collected samples of sediment within and immediately surrounding the pipeline, and sent those samples to EEC, which we then visually evaluated and then forwarded to a laboratory for analyses. It should be noted, that a hydrocarbon sheen was noted in the river water by CCHCC, emanating from the soil around the pipeline.

Laboratory analytical results from these samples indicated concentrations of several polycyclic aromatic hydrocarbons (PAHs) well above State of Illinois minimum composite Tier 1 Remedial Objectives, and found several volatile organic compounds (VOCs), including benzene, toluene, xylenes and naphthalene at concentrations that could have detrimental effects to surface water. The contaminants found in these samples are a match to those constituents that would be expected from a MGP site. Laboratory test results from the CCHCC investigation, along with typical contaminants from a MGP site are shown on Table 1.

Current Investigation

As a result of the findings from the CCHCC investigation, and based upon the continued refusal of Ameren or the IL EPA to provide further investigation of the potential, and now confirmed presence of the pipe, the Weitz &Luxenberg law firm retained EEC to conduct testing of the soil beneath and within the pipe at Boneyard Creek to confirm the findings by CCHCC.

On February 7, 2011, Mr. Robert Bowcock of Integrated Resource Management (IRM) and I went to the pipe location for the purpose of collecting additional samples. Three soil samples were collected. Two samples were from material that was either located within the pipe or had discharged immediately outside

the pipe. One sample was collected of soil beneath the pipe. Samples were collected in laboratory provided sample jars that were labeled and immediately transferred to an ice chest cooled to 4 degrees Centigrade. Samples were shipped to Test America Laboratories in Irvine, California for analyses for VOCs by EPA Method 8260 and semi-VOC's by EPA Method 8270. All samples were collected in accordance with EEC's standard operating procedures for the collection of sediment containing volatile and semi-volatile compounds.

Laboratory test results indicated elevated concentrations of PAHs, well above the State of Illinois minimum composite Tier 1 Remedial Objectives. Again, as with the samples collected by the CCHCC, the chemical contaminants detected in these samples matched those chemical contaminants that would be expected from a MGP site. Laboratory test results are summarized on Table 2, along with a comparison to those chemicals that would be expected in MGP waste.

Discussion

Based upon these results, it is clear that significant concentrations of PAH's remain in the soil and pipeline at Boneyard Creek, and are acting as a source of discharge to surface water. It should be noted that clay pipes, such as the one at Boneyard Creek, do not have sealed joints, are frequently cracked due to settling, tree roots, and age, and therefore leak profusely. Therefore, there is a strong potential that PAH's are present in soil and possibly groundwater along the length of pipe extending from the former Ameren facility to Boneyard Creek. It is also likely that irrigation water and rainwater can make its way into the pipeline, resulting in further discharge to Boneyard Creek. Therefore, the City should insist that the IL EPA, require further assessment of this pipe by Ameren.

Also, we recommend that Ameren and IL EPA re-visit the recommendations contained in EEC's Existing Conditions Report, including but not limited to: fully evaluating the subsurface conditions along the Boneyard Creek discharge pipe; evaluating potential waste disposal sites nearby the Ameren facility; and evaluating vapor intrusions concerns beneath residential properties.

In my opinion, Ameren and the IL EPA have been derelict in their responsibility to provide comprehensive assessment and mitigation of contaminants released from the former MGP plant. This dereliction of responsibility has potentially serious consequences for residents that may be exposed to these contaminants, as well as to the City of Champaign because of the potential that contaminants may still exist within Boneyard Creek, and that waters of the United States may continue to be impacted by a source that has been documented, but ignored. Further it is unconscionable that that the burden of the investigation and evaluation of potential concerns associated with contamination from the former MGP has been placed upon non-technical personnel associated with the CCHCC and outside consultants representing the residents of the community. We would welcome the City to join forces with CCHCC and ourselves and pressure Ameren and the IL EPA to fully evaluate the extent of contaminant distribution and determine if there has been any exposure of residents of the City to these contaminants.

We once again would like to extend our offer to the City of Champaign to collaborate or serve as a resource in your management of the situation. The City should ask itself a few questions:

1) Based on the information that EEC readily uncovered after only one day of research, is the City confident that Ameren has diligently evaluated the extent of contaminant, given it has been working on the situation for 15 years and never disclosed this information?
2) Is the City confident that the IL EPA is protecting the citizens of Champaign, given that once the IL EPA was provided evidence of the existence of a discharge pipe and disposal sites, the IL EPA chose to ignore this information?

3) Is the City confident it has a full and clear understanding of the chemicals of concern, contaminant distribution, and contaminant migration pathways?
4) Given the items above, is the City confident that it understands the potential exposure concerns for City employees (sewer, water, etc) and contractors who may come in contact with the contaminants during routine work activities associated with subsurface work?

As you are likely aware, I have spoken against Champaign's existing groundwater ordinance, as it provides a contaminant discharger a legal mechanism to essentially walk away from its responsibilities to remediate groundwater issues. This ordinance has inadvertently caused a potential to decrease property values of adjacent innocent property owners, degrade a useable supply of groundwater that could be utilized at some future date, and could cause negative impacts to human health through contact with contaminated water and/or inhalation of vapors emanating from the contaminated groundwater (vapor intrusion). Although this was not the original intent of this legislation, the legislation has clearly been utilized by Ameren to minimize the investigation and remediation efforts of their former MGP site, and will likely be used in the same way at other sites. Regarding this ordinance, the City would be wise to rescind this legislation in full and require polluters to fully remediate their groundwater issues to reasonable action levels, and not allow others to be impacted (financially or medically) by contaminants released by the polluter. This system of polluter responsibility is used by all or nearly all other states in the U.S.

Lastly, I was happy to hear the City Council is planning to endorse the IL EPA's Vapor Intrusion guidance. However, I suggest that the City become aware of exactly what is in that proposal before formally adopting this regulation. Based upon my experience with vapor intrusion in other states and jurisdictions, the IL EPA's proposed Tiered Approach to Corrective Action (TACO) guidance for vapor intrusion appears to be woefully inadequate. For instance, the proposed Tier 1 Remedial Objectives for benzene in indoor air is 0.37 mg/m^3, while U.S. EPA uses an indoor air action level of 0.31 ug/ m^3. This results in a Remedial Object in the State of Illinois that is 1,000 times less protective of human health than that established by the U.S. EPA.

Please call me if you have any questions.

Sincerely

Mark Zeko

Mark Zeko
Principal Hydrogeologist

Table 1

Sample Results - Pipeline at Boneyard Creek
Collected by CCHCC

November 20, 2010	Detected EFH and VFH (CADHS/8015B and EPA 5030/8015)	Concentrations (mg/kg) BC-1	BC-2	BC-3	BC-4	Minimum Composite Tier 1 RO*	Soil Component to Groundwater (Class I)
Chemicals of Interest at MGP Sites (Gas Research Institute 1996)	GRO	0.84	0.7	ND	ND		
	DRO	58,000	33,000	490	1,400		
	ORO	3,300	2,400	110	300		
	EFH	62,000	35,000	600	1,700		
VOCs found in MGP waste	Detected VOCs (EPA 5030B/8260B)	BC-1	BC-2	BC-3	BC-4		
Benzene	Benzene	1.6	2.4	ND	ND	0.8	0.03
Ethyl Benzene		ND	ND	ND	ND	58	13
(see PAH's)	Napthalene	46	54	ND	ND	1.8	12
Styrene	Styrene	ND	1	ND	ND	430	4
Toluene	Toluene	3.1	4.5	ND	ND	42	12
	1,2,4-Trimethylbenzene	3	3	ND	ND	—	—
	1,3,5-Trimethylbenzene	3.4	2.3	ND	ND	—	—
Total Xylenes	m,p-Xylenes	3.3	4.4	ND	ND	5.6	150
	o-Xylene	1.1	1.4	ND	ND		
PAHs found in MGP waste	Detected PAHs (EPA 8270C)	BC-1	BC-2	BC-3	BC-4		
Acenaphthene	Acenaphthene	310	ND	ND	ND	4,700	570
Acenaphthylene	Acenaphthylene	410	330	ND	59	—	—
Anthracene	Anthracene	520	320	ND	29	23,000	12,000
Benzo(a)anthracene	Benzo(a)anthracene	650	730	ND	110	1	2
Benzo(a)pyrene	Benzo(a)pyrene	640	730	60	150	0	8
Benzo(b)fluoranthene	Benzo(b)fluoranthene	560	670	49	150	9	5
Benzo(g,h,i)perylene	Benzo(g,h,i)perylene	380	410	48	100	—	—
Benzo(k)fluoranthene	Benzo(k)fluoranthene	190	260	ND	50	9	49
Chrysene	Chrysene	610	680	25	110	88	160
Dibenzo(a,b)anthracene		ND	ND	ND	ND	9	2
Dibenzofuran		ND	ND	ND	ND	—	—
Fluoranthene	Fluoranthene	1,700	1,800	ND	ND	3,100	4,300
Fluorene	Fluorene	320	ND	ND	ND	3,100	560
Indeno(1,2,3-cd)pyrene	Indeno(1,2,3-cd)pyrene	310	350	ND	74	1	14
2-Methylnaphthalene	2-Methylnaphthalene	160	ND	ND	ND	2,300	29
Naphthalene	Naphthalene	220	ND	ND	26	2	12
Phenanthrene	Phenanthrene	910	580	ND	36	—	—
Pyrene	Pyrene	1,600	1,800	35	210	2,300	4,200
Phenolic found in MGP waste	Detected Phenolic Compounds (EPA 8270C)						
Phenol		ND	ND	ND	ND	4,700	100
2-Methylphenol		ND	ND	ND	ND	—	—
4-Methylphenol		ND	ND	ND	ND	—	—
2,4-Dimethylphenol		ND	ND	ND	ND	1,600	9
Metals found in MGP waste	Detected Metals	BC-1	BC-2	BC-3	BC-4		
Aluminum						—	—
Antimony	Antimony	ND	ND	ND	ND	—	—
Arsenic	Arsenic	4.8	4.9	6.7	7.8	13	30
Barium	Barium	53.0	71.0	920.0	83.0	5,500	1,800
	Beryllium	ND	ND	1.20	0.63	—	—
Cadmium	Cadmium	ND	ND	ND	ND	78	59
Chromium	Chromium	3.3	3.7	21.0	15.0	230	32
	Cobalt	1.0	ND	5.3	4.3	—	—
Copper	Copper	22.0	43.0	28.0	35.0	2,900	330,000
Iron						—	40
Lead	Lead	60	56	65	80	400	107
Manganese						1,600	—
Mercury	Mercury	1.10	1.30	0.11	0.18	0.10	6
	Molydenum	ND	ND	2.2	2.0	—	—
Nickel	Nickel	4.6	3.2	20.0	15.0	1,600	700
Selenium	Selenium	ND	ND	ND	ND	390	3
Silver	Silver	ND	ND	ND	ND	390	4
	Thallium	ND	ND	ND	ND	—	—
Vanadium	Vanadium	5	5	32	21	—	—
Zinc	Zinc	70	78	110	130	2,300	16,000

Notes:

Analytical result exceeds one or more Tier 1 Remeidal Objectives (RO)

— NO Remediation Objective has been established by the ILEPA

* Minimum remedial objectives value for Residential, Commercial, and Construction (ingestion and inhalation)

Table 2

Boneyard Creek Pipeline and Soil Sample Results

Sample Date: 02/07/2011 by EEC

Chemicals of Interest at MGP Sites (Gas Research Institute 1996)	Detected EFH and VFH (CADHS/8015B and EPA 5030/8015)	Concentrations (mg/kg) BC Sediment	Pipe Outlet	Pipe Outlet #2	Minimum Composite Tier 1 RO*	Soil Component to Groundwater (Class I)
VOCs found in MGP waste	**Detected VOCs (EPA 5030B/8260B)**	**BC Sediment**	**Pipe Outlet**	**Pipe Outlet #2**		
Benzene		ND	ND	ND	0.8	0.03
Ethyl Benzene		ND	ND	ND	58	13
(see PAH's)	Napthalene	ND	0.024	ND	1.8	12
Styrene	Styrene	ND	0.0025	ND	430	4
Toluene		ND	ND	ND	42	12
		ND	ND	ND	----	----
		ND	ND	ND	----	----
Total Xylenes		ND	ND	ND	5.6	150
		ND	ND	ND		
PAHs found in MGP waste	**Detected PAHs (EPA 8270C)**	**BC Sediment**	**Pipe Outlet**	**Pipe Outlet #2**		
Acenaphthene	Acenaphthene	ND	ND	270	4,700	570
Acenaphthylene	Acenaphthylene	ND	320	330	----	----
Anthracene	Anthracene	ND	300	660	23,000	12,000
Benzo(a)anthracene	Benzo(a)anthracene	46	1,200	1,200	0.9	2
Benzo(a)pyrene	Benzo(a)pyrene	68	1,300	1,200	0.09	8
Benzo(b)fluoranthene	Benzo(b)fluoranthene	60	1,200	1,100	0.9	5
Benzo(g,h,i)perylene	Benzo(g,h,i)perylene	35	710	650	----	----
Benzo(k)fluoranthene	Benzo(k)fluoranthene	ND	460	430	9	49
Chrysene	Chrysene	45	1,100	1,100	88	160
Dibenzo(a,b)antbracene	Dibenzo(a,b)antbracene	ND	170	170	0.09	2
Dibenzofuran		ND	ND	ND	----	----
Fluoranthene	Fluoranthene	60	1,700	2,200	3,100	4,300
Fluorene	Fluorene	ND	ND	160	3,100	560
Indeno(l,2,3-cd)pyrene	Indeno(1,2,3-cd)pyrene	31	600	670	0.9	14
2-Methylnaphthalene	2-Methylnaphthalene	ND	130	ND	2,300	29
Naphthalene	Naphthalene	ND	220	190	1.8	12
Phenanthrene	Phenanthrene	ND	280	560	----	----
Pyrene	Pyrene	81	2,400	2,700	2,300	4,200
Phenolic found in MGP waste	**Detected Phenolic Compounds (EPA 8270C)**					
Phenol		ND	ND	ND	4,700	100
2-Methylphenol		ND	ND	ND	----	----
4-Methylphenol		ND	ND	ND	----	----
2,4-Dimethylphenol		ND	ND	ND	1,600	9

Notes:

Analytical result exceeds one or more Tier 1 Remedial Objectives (RO)

---- NO Remediation Objective has been established by the ILEPA

* Minimum remedial objectives value for Residential, Commercial, and Construction (ingestion and inhalation)